

Balaton® Tree Training

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The Hungarian tart cherry variety, Balaton, is generating a good deal of interest. To learn how to best train this variety, fruit grower Francis Otto and I have been experimenting with various techniques in a Balaton block owned by Cherry Bay Orchards which is located in Suttons Bay, Michigan.

Balaton tends to be a fairly vigorous growing tree. Scaffolds allowed to develop with narrow crotch angles in an upright position will tend to be equally dominant to the leader. This tendency of Balaton to grow more like a sweet cherry requires that care be taken to develop a good tree. Our experience in Michigan favors an approach that begins by developing wide angled scaffolds that will then not need heading cuts. However, when a scaffold develops too upright, the Hungarian heading technique described below can be used.

Training Objectives

1. Lowest scaffold limb must be high enough to facilitate mechanical harvesting. This requires a minimum of 3 feet above the ground, but 3 ½ feet to 4 feet from ground to lowest limb is preferable.
2. Must have wide angles for scaffolds. It appears that Balaton is not as susceptible to tree breakage with narrow crotch angles as is Montmorency, but wide crotch angles are needed to avoid the tendency of upright limbs to grow nearly straight up. Hence, wide angled crotches will help scaffolds grow out and fill space more rapidly. Additionally, since Balaton appears to be more susceptible than Montmorency to low temperatures in the fall and early winter, it is especially important to avoid narrow crotch angles since these narrow crotch angles may not harden off as quickly as wide crotch angles.
3. Desire to fill space rapidly, though Balaton grows faster than Montmorency.

Techniques To Achieve Objectives: Year of Planting

1. Begin by planting nursery stock that is at least ½ inch in diameter, but larger is preferred. Larger nursery stock grows faster and fills space more rapidly. This will also help the tree achieve enough trunk height within two years for good scaffold placement. Small stock may cost an additional year in training.
2. Always whip the trees at planting. Scaffold limbs on nursery trees are too upright and too low to meet our objectives.
3. Provide the trees with good conditions for growth the first year.
4. Generally, no summer manipulation of branches is required. However, if beginning with exceptionally large trees, and if willing to tolerate the lowest limb at about 3ft., then it may be possible to select scaffolds in the second spring. In this situation, use clothes pins to spread potential scaffolds when shoots are 3"-6" (see description under "summer of second leaf").

Second Spring

1. Do not prune young trees until the danger of extremely cold winter temperatures is past.
2. Limbs below the minimum height acceptable from the ground to the lowest scaffold are removed (36" to 48" depending on grower preference). Select a leader and remove any limbs that developed on the leader, i.e. limbs arising from last season's growth. In most situations (except as described in above no. 4 under "Planting Year") all limbs above the minimum

acceptable height and below the base of the leader are pruned back to ¼ to ½ inch stubs. These stubs should be just long enough to keep the bud that nearly always occurs on the bottom of one-year-old limbs right next to the two-year-old trunk. These bottom buds will grow a new lateral with an excellent wide crotch angle. The more buds that break, the flatter the limbs will grow and the better the selection of potential scaffolds for next year. This is a technique developed for Montmorency called "nub whipping" that works well on Balaton.

3. In some cases trees may be large enough, with enough wide crotch angles, to select the initial four scaffolds as described in "Third Spring" below. However, even with large trees when we tried both techniques of nub-whipping and selecting scaffolds at this time, two years later the nub whipped trees look consistently better.
4. Initially we would have recommended never heading the leader on nub-whipped trees, as unheaded trees develop the maximum number of shoots from which to choose desirable scaffolds. However, during periods of high winds, Balaton has been found to be considerably more prone to tree breakage than Montmorency. Balaton wood is soft when it is young. The many shoots that grow out so quickly exert enough wind resistance that in extreme wind conditions trees have a tendency to break at the base of last year's leader growth. Therefore, we now recommend that one of the following occur when Balaton is grown on windy sites or when tree growth is exceptionally good on any site:
 - a. Set stakes to give leaders support against potential wind storms. Place stakes on the downwind side of the prevailing wind. The bark on young branches is tender, and any that rub on the stake will virtually be cut out. Do not risk losing a branch that is growing well into the wind because of an abrasion injury.
 - b. If trees are not going to be staked, we then suggest heading the leader by removing 50% of the leader growth. This will reduce the number of side branches and reduce the leverage of the wind on the top of the tree, both of which will reduce problems with breakage.

Summer of Second Leaf

1. When the shoots are three to six inches in length on nub-whipped trees, it is desirable to walk through the orchard. Most trees will need no manipulation, but occasionally a tree will only produce a few lateral shoots, which often results in upright branches. Place clothes pins on the leader directly above the shoots to create a 90 degree crotch angle.
2. Only leave clothes pins on for a couple of weeks. Again, for orchards with good vigor, this should only need to be done on an occasional tree.

Third Spring

1. Select four wide angled scaffold limbs, beginning at least 36 inches from the ground and spaced at least six inches apart. Completely remove limbs below the lowest scaffold. Also, completely remove the one or two very upright limbs that grew from the buds just below last year's terminal bud. Other lateral limbs that are not being saved as scaffolds, particularly those located generally above scaffolds, should be cut back to about 12 inch stubs rather than completely removed. These stubs will result in shoot growth that helps direct the growth of the scaffolds outward rather than turning too upward. These stubs will be removed during the course of the next two springs.

The difference between Balaton and Montmorency, at this time, is that we have found it is desirable to leave longer stubs and more of them. This helps keep the scaffolds that have been selected from turning too upright (a characteristic more pronounced in Balaton than Montmorency).

2. Do not head scaffolds or leader. Heading is neither necessary nor desirable when scaffolds are growing out in a fairly horizontal position, as they will be at this time.

Summer of Third Leaf

No summer work is necessary.

Fourth Spring

1. For very high density orchards that are planted at 10-15 feet between trees, use the same system as described in the third spring to select an additional two to four scaffolds. For trees on more typical spacing this may also be done, but generally these upper limbs will never really develop into a significant scaffold. The basic structure is developed. The leader rarely stays in the middle and instead will ultimately fill a scaffold position.
2. Some of the stubs that were saved last year are now removed. Do not remove too many of the new shoots from the leader. If saving three or four as possible future scaffolds, then use 12 inch stubbing technique on some of the remaining limbs. Over-pruning tends to cause the scaffolds to grow too upright.
3. Always remove the one to three competitive branches that emerged from buds just below the terminal buds on each scaffold and the leader.
4. Do not head scaffolds in this or subsequent years unless a scaffold has turned very upright. Then the Hungarian heading system can be employed, i.e., heading the limb to an upright bud. Generally, as a result, the terminal bud will produce a very upright branch, and the next bud back from the terminal will produce an outward growing branch. The following year use a bench cut to remove the upright limb that resulted from the heading cut in favor of the outward growing limb. If more than two branches formed at the terminal, remove all but one outward growing branch.
5. With the exception of the situations where the Hungarian heading cuts are desirable (exceptionally upright scaffolds), do not bench cut scaffold limbs by removing the terminal in favor of a lower, more outward growing lateral. Bench cuts often shut down the growth of the scaffold. The possible exception is when a lower, outward growing limb exists that would change the limb angle by less than 30 degrees and both limbs are of equal size. In nearly all cases, avoid the temptation to bench cut and instead remove the lower limb.
6. Support stakes put in earlier can be removed now or next year. Once leader and scaffold branches have established themselves for a couple of years, support is no longer needed.

Fifth and Sixth Spring

Remove one to three upright, most competitive branches competing with the terminals of the scaffolds and leader. Remove the remainder of the original stubs. Thin out other branches as appropriate to keep adequate light into trees, but do not over prune.

Bearing Years

Balaton handles bench cuts to outward growing limits better than Montmorency, so this technique can be used to some extent for scaffold limbs that are too upright. In general, prune enough to keep adequate light into the canopy, but do not over prune.

In the years ahead, an increasing number of Balaton trees will be planted and come into production. As a result, new observations and experimentation may lead to slight modifications in the current tree training recommendations.

These recommendations and other information on Balaton cherry are available at <http://www.maes.msu.edu/nwmihort> and <http://www.hrt.msu.edu/Balaton.html>

My thanks to Cherry Bay for the use of a block of Balatons in which we have been trying various tree training techniques for the past five years. A special thanks to Francis Otto for his assistance, observation, and expertise.